



Elite Ecology

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**Land off A539,
Hanmer**



Preliminary Ecological Appraisal

September 2020



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14/09/2020	V1.3	Final Report	Proof Read

0. Executive Summary

This report has been prepared at the request of CL Edwards and Sons. Elite Ecology were commissioned to undertake a Preliminary Ecological Appraisal at the Land off A539, Hanmer, Wrexham, Wales, SY13 3EN (Central OS Grid Reference: SJ 46126 40423). This survey effort involved both a desktop study and field survey being undertaken.

The current proposals involve the construction of touring caravan plots. This will result in both the permanent and temporary loss and/or alteration of some of the habitats located on the proposed re-development site.

North Wales Environmental Information Service (COFNOD) were commissioned to carry out an ecological data search of all protected species and sites recorded within a 2km radius of the site. No records lay on the proposed re-development site itself.

The preliminary ecological appraisal survey revealed numerous habitats on site. The phase 1 habitat map, habitat codes and target notes for the site are located within **Appendix C**. The following habitats were recorded on site (in habitat code order):

- **A2.1** – Scrub – dense/continuous
- **G1.1** – Standing Water – eutrophic
- **J1.1** – Cultivated/disturbed land - arable
- **J2.1.1** – Intact Hedge – Native Species - Rich

No designated sites that were revealed by the Ecological Data Search provided by COFNOD fell on the proposed re-development site itself. Therefore, the proposed re-development will have no impact upon any local designated sites as the works are due to remain within the site boundary.

No habitats of conservation concern were located on the site itself. Therefore, the proposed scheme of works will not impact upon any rare or valuable habitats.

Amphibians: Due to the presence of a pond on site, Elite Ecology have conducted an eDNA survey. The results and recommendations from this survey can be located in the accompanying report.

Badgers: Although no badger setts were observed on or immediately offsite at the time of the survey, activity patterns of this species can change over a short time. It is therefore recommended that an update badger survey is undertaken prior to the commencement of works. Badger surveys can be undertaken at any time of year and to allow sufficient time to obtain a Natural England badger mitigation licence (should a sett be discovered on or immediately offsite) the survey should be scheduled three months prior to the commencement of works. Additionally, during construction works, excavations should be left closed overnight, or a mammal ladder installed. The ladder needs to be of a size suitable for badgers and can be constructed out of a piece of wood/timber.

Birds: Due to the potential for birds to be nesting, any tree, hedge or ground clearance works are recommended to be undertaken outside of the breeding bird season of March to August, inclusive. If this cannot be done, the area to be affected will be required to be assessed by a suitably qualified ecologist no more than 24 hours prior to the removal of these features. If an active nest is found, then an exclusion zone will be required around this until the chicks have fledged the nest.

Hedgehogs: As a purely precautionary measure, it is recommended that provisions are incorporated during construction. This will be to create provisions for Hedgehogs (*Erinaceus europaeus*) to escape in the form of creating slopes or the inclusion of ramps at the end of each working day from all trenches dug into the ground. Additionally, any pipework left on site that is greater than 150mm in diameter will need to be planked off. Should this information be strictly adhered to, then the development works will not negatively impact on the local mammal populations. It is also recommended that small gaps are left within any boundary fencing to enable Hedgehogs (*Erinaceus europaeus*) to continue to commute through the area. This will ensure that the local populations do not become fragmented within the local landscape.

Reptiles: As the arable land is of some value to the local reptile populations, with the proposed works being minimal, it is recommended that site clearance works is completed under an approved reptile method statement.

Biodiversity Net Gain:

Biodiversity Net Gain needs to be ensured within the scheme of works and this will be devised once all further surveys to determine presence/ absence of protected species have been completed.

Site enhancements:

For the proposed site enhancements, please see **Section 5.5** of this report.

Contents

0. Executive Summary	2
1. Introduction.....	5
1.1 Report rationale.....	5
1.2 Site description and works	5
2. Survey Methodology.....	7
2.1 Desktop Survey	7
2.2 Field Survey	7
3. Desktop Survey Results	8
3.1 Statutory Sites	8
3.2 Non-Statutory Sites	8
3.3 Woodland Sites	9
3.4 Regionally Important Geological Sites (RIGS)	9
3.5 Species Records	9
4. Field Survey	11
4.1 Habitats	11
4.2 Species.....	11
4.3 Potential impacts of the works	12
5. Recommendations.....	13
5.1 Designated Sites	13
5.2 Habitats	13
5.3 Species.....	13
5.4 Biodiversity Net Gain	14
5.5 Site Enhancements	14
6. References	16
7. Appendices	17
Appendix A: Site Plans.....	18
Appendix B: The Ecological Data Tables.....	19
Appendix D: Phase 1 Habitat Map	23
Appendix E: Site Photographs	25
Appendix F: Biodiversity Legislation and Policy.....	27
Appendix G: Bats and Artificial Light.....	34
8. Notice to Readers: Conditions of this Report.....	35

1. Introduction

1.1 Report rationale

This report has been prepared at the request of CL Edwards and Son. Elite Ecology were commissioned to undertake a Preliminary Ecological Appraisal at the Land off A539, Hanmer, Wrexham, Wales, SY13 3EN (Central OS Grid Reference: SJ 46126 40423). This survey effort involved both a desktop study and field survey being undertaken.

The main purpose of this assessment was to identify the broad habitats (as stated in the JNCC Phase 1 Handbook) and the flora species present within the survey area, with any further evidence of protected species usage and/or features of potential ecological interest also included. The field survey was carried out on the 30th of June 2020 by **Mr. Alex Fitzroy**: BSc (Hons), Ecologist.

1.2 Site description and works

The site is situated in a rural area outside of Hanmer, a small village approximately 16km south west of Wrexham in Wrexham County Borough. The centre of Hanmer is located approximately 1km south west of the survey site. In the 2011 census, the population of Hanmer and the surrounding hamlets was 665.

The site contains four habitat types, in the form of Hedge, arable land, standing water – eutrophic and scrubland. Within the wider landscape, further habitats are present. These come in the form of additional structures (and their associated land), agricultural land, broadleaved woodland and hedgerows. The habitats that are on and around the site have the potential to be utilised by protected species.

The current proposals involve the construction of touring caravan plots. This will result in both the permanent and temporary loss and/or alteration of some of the habitats located on the proposed re-development site.

Figure 1: An aerial map showing the location of the land proposed for re-development at the Land off A539, Hanmer (yellow star) in relation to some of the local landscape.

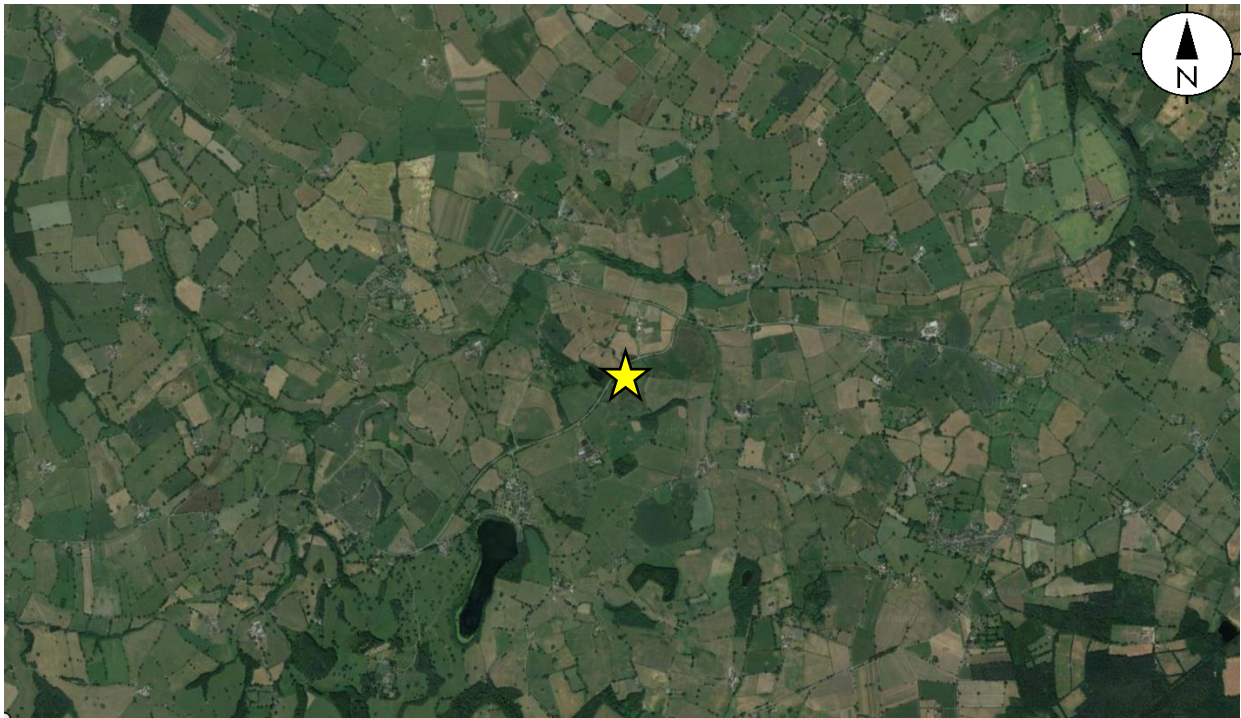
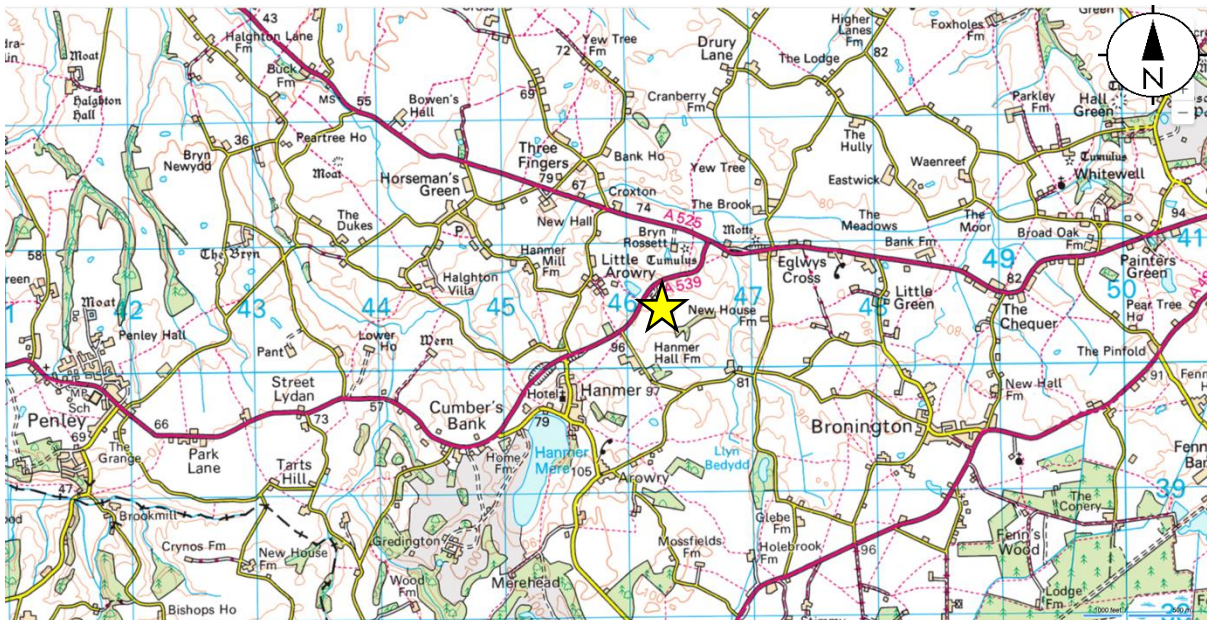


Figure 2: An OS map obtained from Bing showing the location of the Land off A539, Hanmer (yellow star).



2. Survey Methodology

2.1 Desktop Survey

A variety of resources were independently consulted to assess the known local records within the nearby area and the importance of the site within the local landscape from an ecological perspective. The resources used were the Local Records Centre, www.naturalengland.org.uk, www.ordnancesurvey.co.uk, Google Maps, Google Earth and Bing Maps. A search of other relevant nature conservation information was made through the use of the Multi-Agency Geographic Information for the Countryside (MAGIC) database.

The local records centre was contacted to provide data on all protected species and designated sites within 2km of the proposed development site. North Wales Environmental Information Service (COFNOD) was the relevant local record centre for this project.

2.2 Field Survey

A Preliminary Ecological Appraisal (previously referred to as an Extended Phase 1 Habitat Survey) was carried out using the method outlined in the JNCC Handbook for *Phase 1 Habitat Survey: a technique for environmental audit (2010)*. This method aims to map and describe the broad habitat types and notable features present on the surveyed site.

As part of the field survey, the floral species will be identified and noted down. This will consider the dominant, abundant, frequent, occasional and rare (DAFOR) species within each habitat on the survey site. The impacts of the proposed development scheme will be assessed by this report.

Each habitat will be assessed for the presence and/or the potential presence of protected species. The impacts of the proposed scheme of works on all potential protected species on site will be assessed. From this, either remedial action or recommended phase 2 presence/absence surveys will be devised.

Some of the classification codes and colours listed within the JNCC handbook may have been slightly modified for this project.

Habitat Surveys can be carried out at any time of the year, with the optimal time period falling between the months of April through until September. This survey was carried out in June 2020, which is inside of the optimal time period for flora surveys. Elite Ecology feels confident that the majority of the floral species located on the site were competently identified during the survey effort. In addition to this, Elite Ecology feels confident that this report reflects an accurate representation of the site's suitability for protected species to be present.

All sites surveyed by Elite Ecology will be run against the relevant Local Wildlife Site Criteria to assess whether or not they meet the required standards.

3. Desktop Survey Results

3.1 Statutory Sites

The ecological data received from COFNOD confirmed the presence of three statutory protected sites (e.g. LNR, SSSI, SPA, SAC or Ramsar) within the 2km search radius from the site. These are:

- Hanmer Mere: The meres and mosses of the Clwyd-Shropshire-Cheshire-Staffordshire plain form a nationally and internationally important series of open water and peatland sites. These have developed in natural depressions (kettle-holes) in the glacial drift left by the ice sheets which covered this plain some 20,000 years ago.
- Midland Meres & Mosses Phase 2 (Wales): The meres and mosses of the Clwyd-Shropshire-Cheshire-Staffordshire plain form a nationally and internationally important series of open water and peatland sites. These have developed in natural depressions (kettle-holes) in the glacial drift left by the ice sheets which covered this plain some 20,000 years ago.
- Llyn Bedydd: 7km south west of Whitchurch, is the best example of its type in the former county of Clwyd. It is a small comparatively shallow eutrophic (nutrient rich) mere, lying on glacial sand and gravel overlying Keuper Marl. It is fed by a small stream from the south which flows through fen pasture and swampy alder-carr woodland before entering the mere at its southern end. Water overflows are piped underground from the north western corner of the mere.

3.2 Non-Statutory Sites

The ecological data received from COFNOD confirmed the presence of five non-statutory protected site within 2km of the survey site. These are:

- Hanmer Hall Woods: A couple of small secondary woodlands with predominantly sycamore canopies. Black Wood has an area of willow over marshy ground. This ground is mainly bare mud with some water starwort and lesser skullcap. Hanmer Hall Wood and the rest of Black Wood are dry and have much bracken, bramble and stinging-nettle within the ground flora. Also present in this layer are such species as wood millet, bluebell, raspberry, yellow archangel and common hemp-nettle
- Croxton Marsh: Marshy fields along a brook. The marsh is of variable wetness with some swamp areas and some slopes of semi-improved grassland. The sward is diverse with much grasses and rushes. Other species found include water mint, yellow flag, marsh marigold, angelica, meadow vetchling, marsh horsetail and zigzag clover. There is some scattered alder and willow scrub.
- Cranberry Moss: Two small lowland bogs which have become wooded over. The western site has been recently clear-felled. The eastern bog has a low canopy of birch and willow species. There is little relict bog vegetation within the ground flora. Soft rush, bittersweet and pennywort are the most frequent species within the ground flora. Also present are marsh woundwort, yellow flag, purple moor-grass and gipsywort. On the eastern edge of the woodland is a small marsh dominated by soft rush and yorkshire fog with some common spotted orchid, tormentil and pignut.

- Arowry Moss: An old bog which has become woodland. Downy birch, alder, rowan and willow species form a short, often scrubby canopy. Beneath this some bog species still persist in the ground layer. There are several patches of Sphagnum moss as well as some purple moor-grass, Polytrichum moss and marsh violet. Other species found within the woodland include broad buckler fern, remote sedge, honeysuckle and lesser skullcap.
- Willis' Gorse and Marsh: A area of diverse habitats and species. The majority of the site is marsh with abundant yorkshire fog and rushes. The western marsh is short, neutral and semi-improved with much marsh horsetail, creeping buttercup and hairy sedge. The southern marsh is more acid and rank with tufted hair-grass dominant. Other species present in both marshes include tormentil, marsh willowherb, bog stitchwort and meadowsweet. At the southern tip of the site is a small area of lowland acid grassland and gorse scrub. Species such as common bent, sheep's fescue and heath bedstraw dominate here. Willis' Gorse is a recently fenced open woodland with much bracken in the clearings. Downy birch and alder are the most frequent trees on the mainly damp soil. Species present within the under developed ground flora include lady fern, bluebell and raspberry.

3.3 Woodland Sites

The information provided by COFNOD revealed six woodland sites within the 2km search radius from the survey site.

3.4 Regionally Important Geological Sites (RIGS)

The information provided by COFNOD found no RIGS within the search area.

3.5 Species Records

3.5.1 Amphibians

Within the ecological data search provided by COFNOD, seven records of amphibians were detected within the 2km search radius, belonging to two species. The closest of these was of Great Crested Newt (*Triturus cristatus*) located approximately 1817m away. A table with the collated amphibian species recorded can be found within Appendix B.

3.5.2 Birds

Within the ecological data search provided by COFNOD, multiple records of birds were detected within the 2km search radius, belonging to 105 species. The closest of these was of Barn Owl (*Tyto alba*) located approximately 372m away. A table with the collated bird species recorded can be found within Appendix B.

3.5.3 Crustacean

Within the ecological data search provided by COFNOD, no records of crustaceans were revealed.

3.5.4 Fish

Within the ecological data search provided by COFNOD, no records of fish were revealed.

3.5.5 Invertebrates

Within the ecological data search provided by COFNOD, multiple records of insects were detected within the 2km search radius, belonging to seven different species. The closest of these was of *Ferdinandea ruficornis* (*Ferdinandea ruficornis*) located approximately 1632m away. A table with the collated insect species recorded can be found within Appendix B.

3.5.6 Mammals

Within the ecological data search provided by COFNOD, multiple records of mammals were detected within the 2km search radius, belonging to 12 different species. The closest of these was of Polecat (*Mustela putorius*) located approximately 425m away. A table with the collated mammal species recorded can be found within Appendix B.

3.5.7 Plants

Within the ecological data search provided by COFNOD, multiple records of plants were detected within the 2km search radius, belonging to 43 different species. The closest of these was of Chicory (*Cichorium intybus*), located approximately 298m away. A table with the collated plant species recorded can be found within Appendix B.

3.5.8 Reptiles

Within the ecological data search provided by COFNOD, no records of reptiles were revealed.

4. Field Survey

4.1 Habitats

The preliminary ecological appraisal survey revealed four habitats on site. The phase 1 habitat map, habitat codes and target notes for the site are located within **Appendix D**. The following habitats were recorded on site (in habitat code order):

4.1.1 A2.1 – Scrub – Dense/Continuous

The site has numerous areas of scrubland that is mainly dominated by bramble. This area provides excellent refuge locations for a number of reptiles, small mammal and ground nesting birds.

4.1.2 G1.1 – Standing Water – Eutrophic

The survey site includes a pond which could be utilised by a number of protected species such as Great Crested Newts (*Triturus cristatus*). This pond is approximately 69m².

4.1.3 J1.1 – Cultivated/disturbed land – Arable Land

The majority of the survey site comprised largely of arable land. This is comprised of Perennial ryegrass (*Lolium perenne*), False oat-grass (*Arrhenatherum elatius*) and Cock's-foot (*Dactylis*). This habitat has a **low** protected species potential.

4.1.4 J2.1.1 – Intact Hedge-native – Species-rich

The hedgerow that surrounds a portion of the survey site contains a number of different species such as Hazel (*Corylus*), Sycamore, (*Acer pseudoplatanus*), Ash (*Fraxinus*), Hawthorn (*Crataegus*), Holly (*Ilex*), Oak (*Quercus*) and Blackthorn (*Prunus spinosa*).

4.2 Species

The preliminary ecological appraisal survey revealed that the habitats that have been outlined for the proposed development area do contain protected species potential. The following assessment has also taken into account the adjacent habitats and connectivity to the wider landscape for all protected and rare species.

4.2.1 Amphibians (including Great Crested Newts)

There is a suitable pond located on the survey site. Due to this Elite Ecology conducted an eDNA survey and the results of this are available in the accompanying report. Access was attempted for all other ponds within 250m of the site, but land access could not be obtained.

4.2.2 Badgers

The survey visit did not uncover any evidence of Badger (*Meles meles*) activity on site. The site is accessible for Badger (*Meles meles*) and it can be assumed that they commute through the site. Therefore, further precautionary measures are required for the survey site (please see **Section 5.3**).

4.2.3 Bats

Due to the lack of suitable roosting features, the site was deemed as having a **negligible** potential for bats to roost. The trees within the surrounding the site have a **low** bat roosting potential. However, as these features are to be retained, no further work is required.

4.2.4 Birds

The hedgerow trees surrounding the site have a **high** potential to support nesting birds, although these are to be retained. The field itself could support ground nesting specimens, but this is of **low** potential due to a lack of predatory cover. However, further precautionary measures are required for the survey site (please see **Section 5.3**).

4.2.5 Hedgehogs

The site is accessible for Hedgehogs (*Erinaceus europaeus*) and it can be assumed that Hedgehogs (*Erinaceus europaeus*) commute through the site. Therefore, further precautionary measures are required for the survey site (please see **Section 5.3**).

4.2.6 Reptiles

The grassland on site is well connected to nearby habitats and provides excellent reptile refuge, therefore, it has **moderate** potential to support reptile populations. They are expected to use the site for commuting purposes and so, further precautionary measures are required for the survey site (please see **Section 5.3**).

4.3 Potential impacts of the works

Based upon the results from the desktop survey, field survey and using a degree of academic supposition, the uncompensated development impacts have been summarised as follows:

- Amphibians – **Unknown**
- Badgers – **Low**
- Bats – **Negligible**
- Birds – **High**
- Hedgehogs – **Low**
- Reptiles – **Moderate**

5. Recommendations

5.1 Designated Sites

No designated sites that were revealed by the ecological data search provided by COFNOD fell on the proposed re-development site itself. Therefore, the proposed re-development will have no impact upon any local designated sites as the works are due to remain within the site boundary.

5.2 Habitats

No habitats of conservation concern were located on the site itself. Therefore, the proposed scheme of works will not impact upon any rare or valuable habitats.

5.3 Species

The site was found to contain the potential to support protected and/or rare species. Therefore, the following recommendations are required for the site:

5.3.1 Amphibians

Due to the presence of a pond on site, Elite Ecology have conducted an eDNA survey. The results and recommendations from this survey can be located in the accompanying report.

5.3.2 Badgers

Although no badger setts were observed on or immediately offsite at the time of the survey, activity patterns of this species can change over a short time. It is therefore recommended that an update badger survey is undertaken prior to the commencement of works. Badger surveys can be undertaken at any time of year and to allow sufficient time to obtain a Natural England badger mitigation licence (should a sett be discovered on or immediately offsite) the survey should be scheduled three months prior to the commencement of works.

Additionally, during construction works, excavations should be left closed overnight, or a mammal ladder installed. The ladder needs to be of a size suitable for badgers and can be constructed out of a piece of wood/timber.

5.3.3 Birds

Due to the potential for birds to be nesting, any tree, hedge or ground clearance works are recommended to be undertaken outside of the breeding bird season of March to August, inclusive. If this cannot be done, the area to be affected will be required to be assessed by a suitably qualified ecologist no more than 24 hours prior to the removal of these features. If an active nest is found, then an exclusion zone will be required around this until the chicks have fledged the nest.

5.3.4 Hedgehogs

As a purely precautionary measure, it is recommended that provisions are incorporated during construction. This will be to create provisions for Hedgehogs (*Erinaceus europaeus*) to escape in the form of creating slopes or the inclusion of ramps at the end of each working day from all trenches dug into the ground. Additionally, any pipework left on site that is greater than 150mm in diameter will need to be planked off. Should this information be strictly adhered to, then the development works will not negatively impact on the local mammal populations.

It is also recommended that small gaps are left within any boundary fencing to enable Hedgehogs (*Erinaceus europaeus*) to continue to commute through the area. This will ensure that the local populations do not become fragmented within the local landscape.

5.3.5 Reptiles

As the arable land is of some value to the local reptile populations, with the proposed works being minimal, it is recommended that site clearance works is completed under an approved reptile method statement.

5.4 **Biodiversity Net Gain**

Biodiversity Net Gain needs to be ensured within the scheme of works and this will be devised once all further surveys to determine presence/absence of protected species have been completed. This needs to ensure that a minimum of a 10% gain is achieved.

5.5 **Site Enhancements**

For the proposed development works, the following site enhancement measures could be incorporated into the site post-development. These measures are optional but are bespoke to the site surveyed for the enhancement of biodiversity.

5.5.1 Badgers

Currently, on site evidence of mammalian access corridors through the site boundary (as shown in **Appendix D** Plate 4) is present. Therefore, it is recommended to create wildlife corridors during and post-development. Also due to the current lack of plant diversity, dense native shrubs can be introduced to the hedgerows as an added protection. For example, the following species can be introduced: Gorse (*Ulex*), Blackthorn (*Prunus spinosa*), Holly (*Ilex*) and Elderberry (*Sambucus*). These species would also enhance the foraging habitat.

5.5.2 Flora

At present, the site is not considered to have a diverse range of flora. Therefore, it is recommended that a small section of the site is converted into a 'wild meadow' that uses native wildflower seed mixes. A variety of these can be found on the [Meadowmania](#) or [Wildflower Turf](#) webpages.

5.5.3 Hedgehogs

The site could be enhanced for the local Hedgehog (*Erinaceus europaeus*) population by installing [Eco Hedgehog Nest Boxes](#) around this area. This will create more opportunities for Hedgehogs (*Erinaceus europaeus*) within the local landscape.

5.5.4 Invertebrates

At present, the site is not considered to be of any importance to local invertebrate populations. In conjunction with the wildflower planting, it is recommended that one [Bumblebee Box](#) are incorporated into the scheme, along with one [Bug Hotel](#). This will enhance the site for the local invertebrate populations, which will thus attract species further up in the trophic level.

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7. Appendices

Appendix A: Site Plans

Appendix B: Desktop Study Table

Appendix C: Phase 1 Habitat Map

Appendix D: Site Photographs

Appendix E: Biodiversity Legislation and Policy

Appendix F: Bat and Artificial Light

Appendix A: Site Plans

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REVISIONS

LETTER	REVISION	DATE	BY
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PROJECT
LAND OFF A539, HANMER
TITLE
SITE LOCATION PLAN

SCALE	1:2500@A3	DRAWN BY	MLT
DATE	APR 2020	STAGE	
DWG No	6649 04	REVISION	

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LETTER	REVISION	DATE	BY
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A	UPDATED TO SUP CLIENTS COMMENTS	09.08.20 MLT
B	UPDATED TO SUP CLIENTS COMMENTS	26.04.20 MLT
C	UPDATED TO SUP CLIENTS COMMENTS	22.04.20 MLT
D	UPDATED TO SUP CLIENTS COMMENTS	24.04.20 MLT

LEGEND

- TC TOURING CARAVAN
- 20m PITCHES
- ON PITCH PARKING PROVISION
- 16m WATER SUPPLY POINT PER PITCH
- 16m ELECTRIC HOOK UP POINT
- 800 MM HIGH BLACK ROLLUP LIGHT WITH POLYCARBONATE OFFSHOOT & 220V 50 HZ SUPPLY
- EXISTING GRAVED AREA RETAINED
- GRASS/POSSIBLE 10% GRASS REINFORCEMENT SYSTEM GRASS FILL
- BETWEEN MACHINERY VEHICLE CRUSING TO MACHINERY SPECIFICATION
- EXISTING TREES SHOWN THIS
- NEW SELECTED STANDARD TREE 1.5 TO 1.8m HIGH
- DRAWY BORDER REDUCE TO PITCHES

BOWER EDELESTON ARCHITECTS

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PROJECT
LAND OFF A539, HANMER
TITLE
PROPOSED SITE PLAN

SCALE	1:3000@A3	DRAWN BY	MLT
DATE	MAR 2018	STAGE	
DWG No	6649 02	REVISION	D



Appendix B: The Ecological Data Tables

Amphibians	
Common Name	Latin Name
Great Crested Newt	<i>Triturus cristatus</i>
Smooth Newt	<i>Lissotriton vulgaris</i>
Birds	
Common Name	Latin Name
Barn Owl	<i>Tyto alba</i>
Black-headed Gull	<i>Chroicocephalus ridibundus</i>
Brambling	<i>Fringilla montifringilla</i>
Bullfinch	<i>Pyrrhula pyrrhula</i>
Canada Goose	<i>Branta canadensis</i>
Coal Tit	<i>Periparus ater</i>
Common Gull	<i>Larus canus</i>
Cormorant	<i>Phalacrocorax carbo</i>
Curlew	<i>Numenius arquata</i>
Duncock	<i>Prunella modularis</i>
Fieldfare	<i>Turdus pilaris</i>
Gadwall	<i>Anas strepera</i>
Goldcrest	<i>Regulus regulus</i>
Goldeneye	<i>Bucephala clangula</i>
Grey Partridge	<i>Perdix perdix</i>
Herring Gull	<i>Larus argentatus</i>
House Martin	<i>Delichon urbicum</i>
House Sparrow	<i>Passer domesticus</i>
Kestrel	<i>Falco tinnunculus</i>
Kingfisher	<i>Alcedo atthis</i>
Lapwing	<i>Vanellus vanellus</i>
Lesser Black-backed Gull	<i>Larus fuscus</i>
Long-tailed Tit	<i>Aegithalos caudatus</i>
Mallard	<i>Anas platyrhynchos</i>
Marsh Tit	<i>Poecile palustris</i>
Mute Swan	<i>Cygnus olor</i>
Oystercatcher	<i>Haematopus ostralegus</i>
Pintail	<i>Anas acuta</i>
Pochard	<i>Aythya ferina</i>
Redwing	<i>Turdus iliacus</i>
Reed Bunting	<i>Emberiza schoeniclus</i>
Sand Martin	<i>Riparia riparia</i>
Shoveler	<i>Anas clypeata</i>
Song Thrush	<i>Turdus philomelos</i>

Preliminary Ecological Appraisal

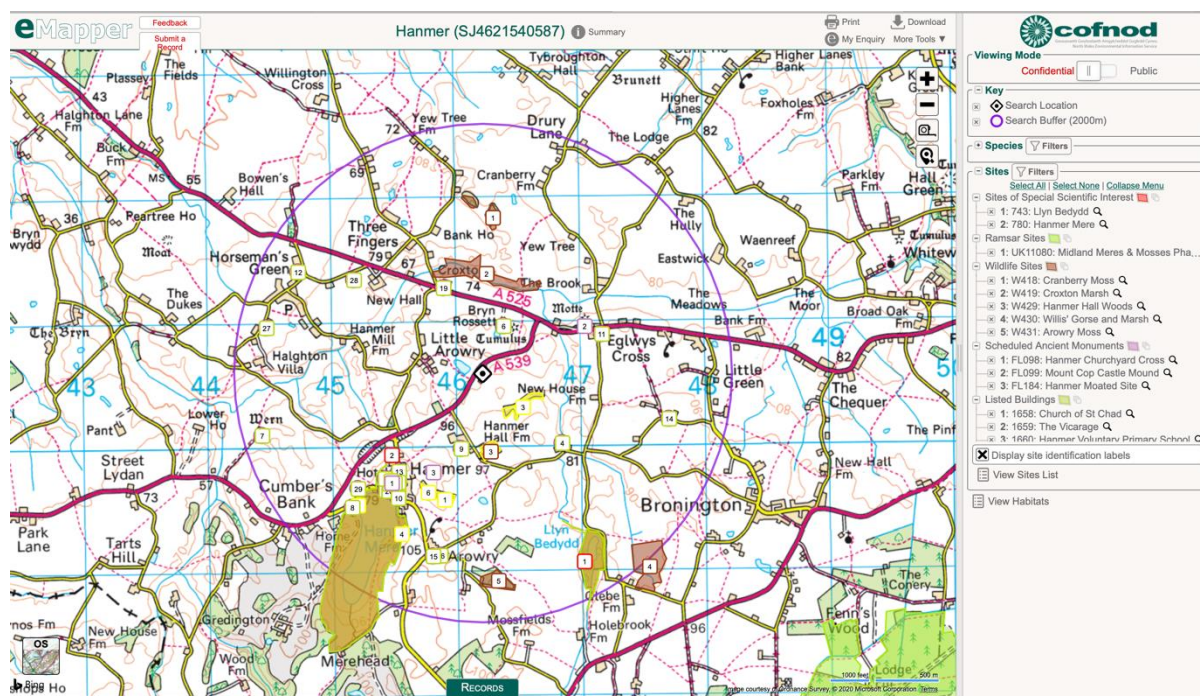
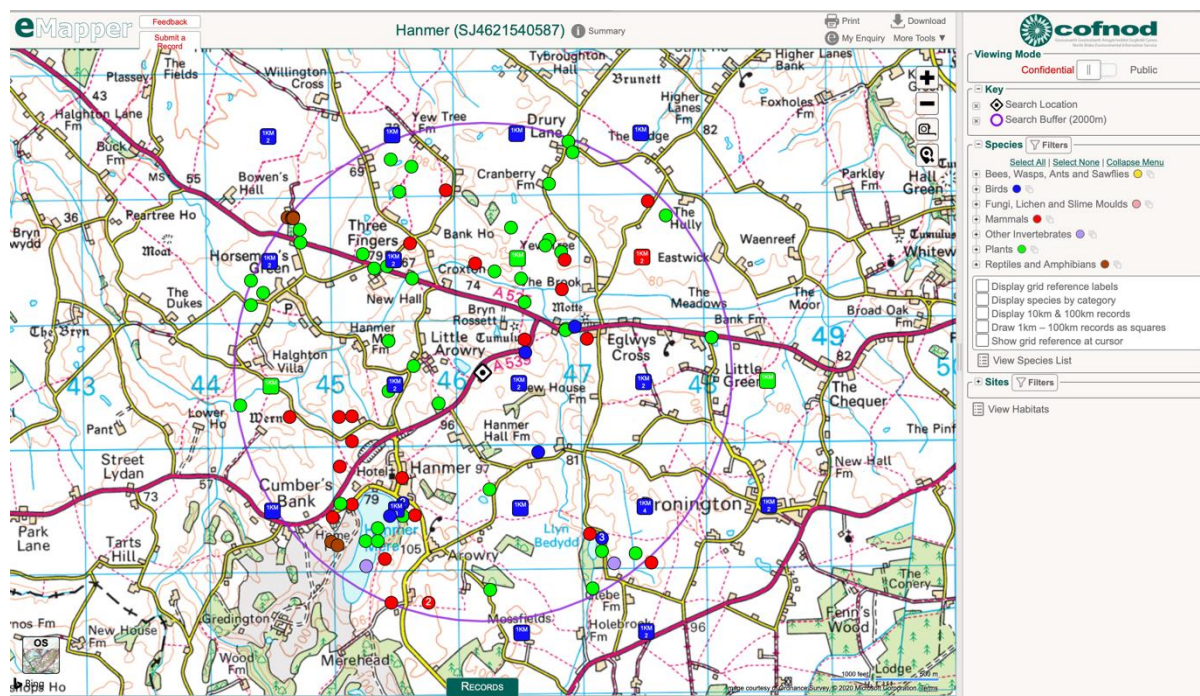
Starling	<i>Sturnus vulgaris</i>
Swallow	<i>Hirundo rustica</i>
Swift	<i>Apus apus</i>
Teal	<i>Anas crecca</i>
Tree Sparrow	<i>Passer montanus</i>
Tufted Duck	<i>Aythya fuligula</i>
Whitethroat	<i>Sylvia communis</i>
Wigeon	<i>Anas penelope</i>
Woodcock	<i>Scolopax rusticola</i>
Yellow Wagtail	<i>Motacilla flava</i>
Flora	
Common Name	Latin Name
	<i>Xanthoria ucrainica</i>
	<i>Rhododendron ponticum</i>
Alder Buckthorn	<i>Frangula alnus</i>
Bay Willow	<i>Salix pentandra</i>
Bladder-sedge	<i>Carex vesicaria</i>
Bluebell	<i>Hyacinthoides non-scripta</i>
Bugloss	<i>Anchusa arvensis</i>
Canadian Waterweed	<i>Elodea canadensis</i>
Charlock	<i>Sinapis arvensis</i>
Cherry Laurel	<i>Prunus laurocerasus</i>
Chicory	<i>Cichorium intybus</i>
Corn Mint	<i>Mentha arvensis</i>
Cowbane	<i>Cicuta virosa</i>
Floating Club-rush	<i>Eleogiton fluitans</i>
Greater Pond-sedge	<i>Carduus tenuiflorus</i>
Greater Spearwort	<i>Ranunculus lingua</i>
Hawkweed	<i>Hieracium sect. Sabauda</i>
Himalayan Cotoneaster	<i>Cotoneaster simonsii</i>
Himalayan Honeysuckle	<i>Leycesteria formosa</i>
Horned Pondweed	<i>Zannichellia palustris</i>
Japanese Rose	<i>Rosa rugosa</i>
Least Duckweed	<i>Lemna minuta</i>
Lesser Bulrush	<i>Typha angustifolia</i>
Lesser Marshwort	<i>Apium inundatum</i>
Marsh Arrowgrass	<i>Triglochin palustre</i>
Northern Yellow-cress	<i>Rorippa islandica</i>
Polypody	<i>Polypodium vulgare x interjectum = P. x mantoniae</i>
Purple Small-reed	<i>Calamagrostis canescens</i>
Radish	<i>Raphanus raphanistrum</i>
Rigid Hornwort	<i>Ceratophyllum demersum</i>
Rose	<i>Rosa canina x caesia = R. x dumalis</i>
Sharp-leaved Fluellen	<i>Kickxia elatine</i>

Preliminary Ecological Appraisal

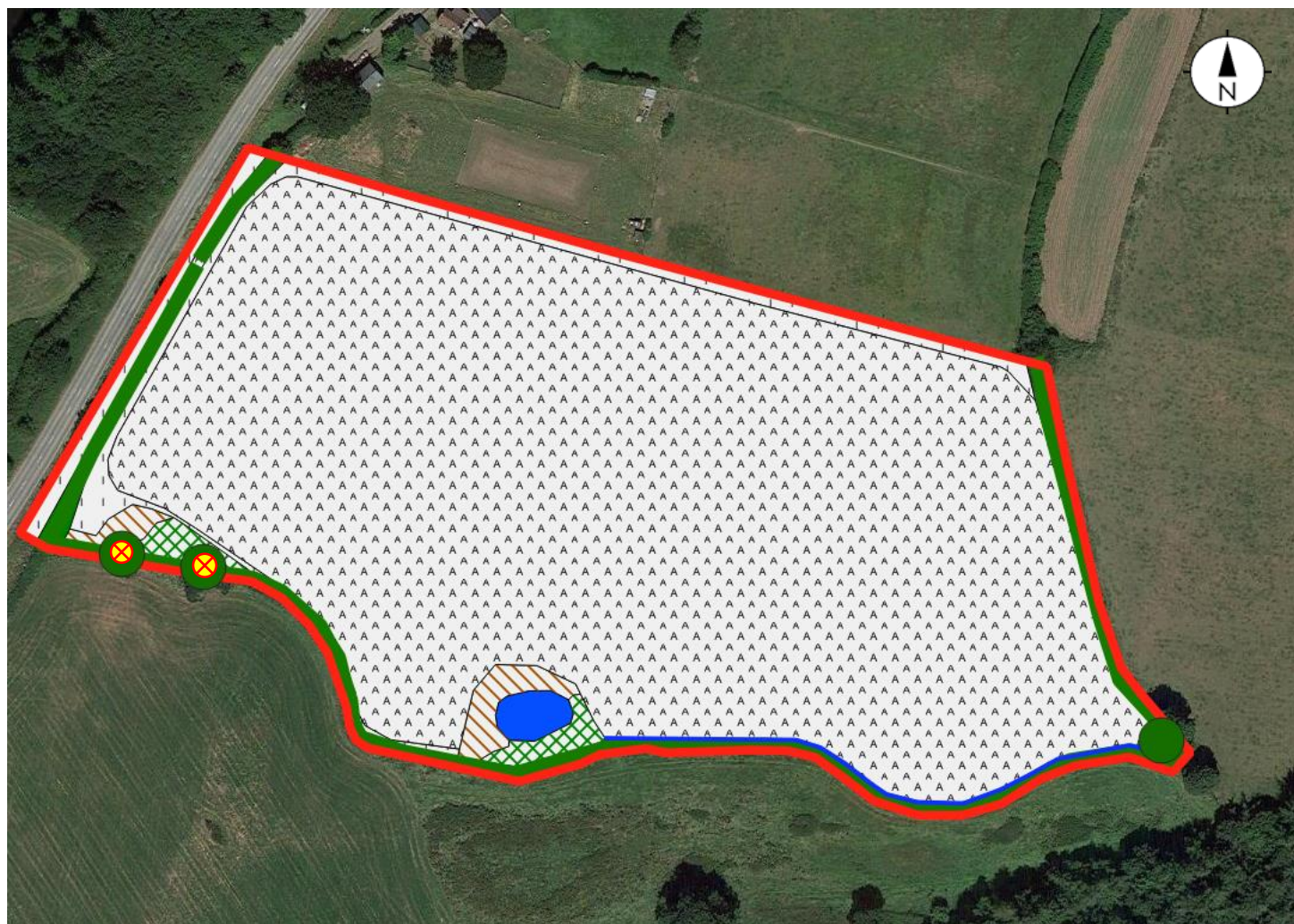
Silky-leaved Osier	<i>Salix viminalis x cinerea = S. x holosericea</i>
Slender Thistle	<i>Carduus tenuiflorus</i>
Sweet-briar	<i>Rosa rubiginosa</i>
Thread-leaved Water-crowfoot	<i>Ranunculus trichophyllus</i>
Trifid Bur-marigold	<i>Bidens tripartita</i>
Tubular Water-dropwort	<i>Oenanthe fistulosa</i>
Variegated Yellow Archangel	<i>Lamium galeobdolon subsp. argentatum</i>
Wall Cotoneaster	<i>Cotoneaster horizontalis</i>
White Stonecrop	<i>Sedum album</i>
Wood Club-rush	<i>Scirpus sylvaticus</i>
Invertebrates	
Common Name	Latin Name
	<i>Ferdinandea ruficornis</i>
Large Sallow Mining Bee	<i>Andrena (Andrena) apicata</i>
Lime Beetle	<i>Stenostola dubia</i>
Ruddy Darter	<i>Sympetrum sanguineum</i>
Smaller Noterus	<i>Noterus crassicornis</i>
Mammals	
Common Name	Latin Name
American Mink	<i>Neovison vison</i>
Badger	<i>Meles meles</i>
Brown Long-eared bat	<i>Plecotus auritus</i>
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>
Hare	<i>Lepus europaeus</i>
Myotis Bat Species	<i>Myotis</i>
Noctule Bat	<i>Nyctalus noctula</i>
Otter	<i>Lutra lutra</i>
Polecat	<i>Mustela putorius</i>
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>
Unknown Bat	<i>Chiroptera</i>

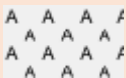
Appendix C: The Ecological Data Search Maps

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Appendix D: Phase 1 Habitat Map



KEY	
	Site Boundary
	A2.1 - Scrub
	B4 – Improved Grassland
	C3.1 – Tall Ruderal
	G1 - Pond
	J1.1 – Arable Land
	J2.4 – Hedge with Trees
	J2.6
	Target Note – Old oak tree with roosting bat potential

Appendix E: Site Photographs

Plate 1: An overview photograph of the site showing the arable land.



Plate 2: A view of a section of hedgerow showing the aforementioned species.



Plate 3: A photo of the pond, believed to support Great Crested Newts.



Plate 4: A photo of an oak tree on site with potential bat roosting features



Appendix F: Biodiversity Legislation and Policy

General Legislation and Policy:

The framework of legislation and policy which underpins nature conservation in England. This is a material consideration in the planning process in England.

Conservation of Habitats and Species Regulations 2017 (Habitats Regulations 2010 as amended)

The Conservation of Habitats and Species Regulations 2017 consolidate and update the Conservation Regulations 1994 and the conservation of habitats and species regulations 2010 (and all their amendments). The Conservation of Habitats and Species Regulations 2017 are the principal means by which the EEC Council Directive 92/43 (The Habitats Directive) as amended is transposed into English and Welsh law.

The Conservation of Habitats and Species Regulations 2017 place duty upon the relevant authority of government to identify sites which are of importance to the habitats and species listed in Annexes I and II of the Habitats Directive. Those sites which meet the criteria are, in conjunction with the European Commission, designated as Sites of Community Importance, which are subsequently identified as Special Areas of Conservation (SAC) by the European Union member states. The regulations also place a duty upon the government to maintain a register of European protected sites designated as a result of EC Directive 79/409/EEC on the Conservation of Wild Birds (The Birds Directive). These sites are termed Special Protection Areas (SPA) and, in conjunction with SACs, form a network of sites known as Natura 2000. The Habitats Directive introduces for the first time for protected areas, the precautionary principle; that is that projects can only be permitted having ascertained no adverse effect on the integrity of the site. Projects may still be permitted if there are no alternatives, and there are imperative reasons of overriding public interest.

The Conservation of Habitats and Species Regulations 2017 also provide for the protection of individual species of fauna and flora of European conservation concern listed in Schedules 2 and 5 respectively. Schedule 2 includes species such as otter and great crested newt for which the UK population represents a significant proportion of the total European population. It is an offence to deliberately kill, injure, disturb or trade these species. Schedule 5 plant species are protected from unlawful destruction, uprooting or trade under the regulations.

The Wildlife and Countryside Act (WCA) 1981 (As amended)

The WCA, as amended, consolidates and amends pre-existing national wildlife legislation in order to implement the Bern Convention and the Birds Directive. It complements the Conservation (Natural Habitats. & c.) Regulations 1994 (as amended), offering protection to a wider range of species. The Act also provides for the designation and protection of national conservation sites of value for their floral, faunal or geological features, termed Sites of Special Scientific Interest (SSSIs).

Schedules of the act provide lists of protected species, both flora and fauna, and detail the possible offences that apply to these species.

The Countryside and Rights of Way (CROW) Act 2000

The CROW Act, introduced in England and Wales in 2000, amends and strengthens existing wildlife legislation detailed in the WCA. It places a duty on government departments and the National Assembly for Wales to have regard for biodiversity, and provides increased powers for the protection and maintenance of SSSIs.

The Act also contains lists of habitats and species (Section 74) for which conservation measures should be promoted, in accordance with the recommendations of the Convention on Biological Diversity (Rio Earth Summit) 1992.

The Natural Environment and Rural Communities (NERC) Act 2006

Section 40 of the NERC Act places a duty upon all local authorities and public bodies in England and Wales to promote and enhance biodiversity in all of their functions. Sections 41 (England) and 42 (Wales) list habitats and species of principal importance to the conservation of biodiversity. These lists supersede Section 74 of the CRoW Act 2000. These species and habitats are a material consideration in the planning process.

The Hedgerow Regulations 1997

The Hedgerow Regulations make provision for the identification of important hedgerows which may not be removed without permission from the Local Planning Authority.

UK Biodiversity Action Plan

The United Kingdom Biodiversity Action Plan (UKBAP), first published in 1994 and updated in 2007, is a government initiative designed to implement the requirements of the Convention of Biological Diversity to conserve and enhance species and habitats. The UKBAP contains a list of priority habitats and species of conservation concern in the UK, and outlines biodiversity initiatives designed to enhance their conservation status. Lists of Broad and Local habitats are also included. The priority habitats and species correlate with those listed on Section 41 and 42 of the NERC Act.

The UKBAP requires that conservation of biodiversity is addressed at a County level through the production of Local BAPs. These are complementary to the UKBAP, however are targeted towards species of conservation concern characteristic of each area. In addition, a number of local authorities and large organisations have produced their own BAPs. UKBAP and Local BAP targets with regard to species and habitats are a material consideration in the planning process.

Planning Policy (England) and National Planning Policy Framework

In early 2012, the National Planning Policy Framework (NPPF) replaced much previous planning policy guidance, including Planning Policy Statement 9: Biological and Geological Conservation. The government circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System, which accompanied PPS9, still remains valid. A presumption towards sustainable development is at the heart of the NPPF. This presumption does not apply however where developments require appropriate assessment under the Birds or Habitats Directives. The latest National Planning Policy Framework was updated in February 2019, with the section in relation to conserving the natural environment being located within section 15.

Section 15, on conserving and enhancing the natural environment, sets out how the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and, where possible, provide net gains in biodiversity. Opportunities to incorporate biodiversity gains into a development should be encouraged.

If a proposed development would result in significant harm to the natural environment which cannot be avoided (through the use of an alternative site with less harmful impacts), mitigated or compensated for (as a last resort) then planning permission should be refused.

Species Specific Legislation

This section contains a summary of legislation with relation to the species present or potentially present in the survey area. The reader should refer to the original legislation for definitive interpretation.

Nesting and Nest Building Birds

Nesting and nest building birds are protected under the Wildlife and Countryside Act WCA 1981 (as amended). Some species (listed in Schedule 1 of the WCA) are protected by special penalties.

Subject to the provisions of the act, if any person intentionally:

- kills, injures or takes any wild bird;
- takes, damages or destroys the nest of any wild bird while that nest is in use or being built; or
- takes or destroys an egg of any wild bird, he shall be guilty of an offence.

'Reckless' offences with regard to the disturbance of nesting wild birds included in Schedule 1 of the Wildlife and Countryside Act were added by the Countryside and Rights of Way Act 2000.

The Natural Environment and Rural Communities (NERC) Act 2006 places a duty on Government Departments to have regard for the conservation of biodiversity and maintains lists of species and habitats which are of principal importance for the purposes of conserving biodiversity in England and Wales. These lists include a number of bird species.

The reader is referred to the original legislation for the definitive interpretation.

Badger

The main legislation protecting badgers in England and Wales is the Protection of Badgers Act 1992 (the 1992 Act). Under the 1992 Act it is an offence to:

- wilfully kill, injure, take or attempt to kill, injure or take a badger;
- possess a dead badger or any part of a badger;
- cruelly ill-treat a badger;
- use badger tongs in the course of killing, taking or attempting to kill a badger;
- dig for a badger;
- sell or offer for sale or control any live badger;
- mark, tag or ring a badger; and
- interfere with a badger sett by:
 - damaging a sett or any part thereof;
 - destroying a sett;
 - obstructing access to a sett;
 - causing a dog to enter a sett; and
 - disturbing a badger while occupying a sett.

The 1992 Act defines a badger sett as: "any structure or place which displays signs indicating current use by a badger".

Bats

All species of bat are fully protected under a variety of domestic, European and international legislation and conventions. These include:

- Bern Convention (Appendix II)
- Bonn Convention (Appendix II)
- Conservation Regulations (Northern Ireland) 1995
- Conservation of Habitats and Species Regulations 2010
- Countryside Rights of Way Act 2000
- Eurobats Agreement
- Habitats Directive (Annexes IV and II)
- Habitats Regulations 1994 (as amended) Scotland
- NERC Act 2006
- Wildlife and Countryside Act 1981 (as amended)
- Wild Mammals Protection Act

In addition to this, some species have additional protection by being listed on the UK Biodiversity Action Plan (UKBAP).

The legislation afforded to bats makes it illegal to possess or control any live or dead specimens, to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a bat while it is occupying a structure or place which it uses for that purpose.

All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended), which protects birds, nests, eggs and nestlings from harm. In addition to this, some rarer species, such as barn owls are afforded extra protection.

National Planning Policy Framework, Section 15:

The published framework in 2018 replaces the previous Planning Policy Statement 9 and National Planning Policy (dated 2012).

Section 15: Conserving and enhancing the natural environment reaffirms the government's commitment to maintaining green belt protections and preventing urban sprawl, retains the protection of designated sites and preserves wildlife. It also aims to improve the quality of the natural environment and halt declines in species and habitats, protects and enhances biodiversity and promotes wildlife corridors.

Biodiversity 2020:

This sets out to halt overall biodiversity loss and support healthy well-functioning ecosystems by establishing coherent ecological networks, with more and better places for nature, to the benefit of wildlife and people. The government's policy is aimed at individuals, communities, local authorities, charities, business and government, which all have a role to play in delivering Biodiversity 2020.

Freshwater White-clawed Crayfish

The white-clawed crayfish is partially protected under Wildlife and Countryside Act 1981 (as amended). It is listed on schedule 5 and therefore afforded protection under Section 9 (1 and 5). Therefore, it is an offence to take white-clawed crayfish and to sell, or attempt to sell, any part of the species, alive or dead, or intend to buy or sell.

Great Crested Newt

The great crested newt (*Triturus cristatus*) is fully protected under a variety of legislation and conventions. These include:

- Bern Convention (Appendix II)
- Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)
- Conservation of Habitats and Species Regulations 2010
- EU Habitats Directive (Annex II and IV)
- Nature Conservation (Scotland) Act 2004
- NERC Act 2006 (Section 41 England; Section 42 Wales)
- Wildlife and Countryside Act 1981 (as amended)

In addition to this, the great crested newt has been listed as a priority species on the UK Biodiversity Action Plan (UKBAP).

This legislation covers all aspects of newt life stages (eggs, efts and adult newts) and makes it illegal to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a great crested newt while it is occupying a structure or place which it uses for that purpose.

Licenses can be obtained from Natural England (DEFRA) under the Conservation (Natural Habitats etc.) Regulations 1994, to permit activities for the purposes of:

- Regulation 44(2)(e): Preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment, or
- Regulation 44(2)(f): Preventing the spread of disease
- Regulation 44(2)(g): Preventing serious damage to any form of property or fisheries

Or

- If there is no satisfactory alternative.

The above regulations allow people to carry out activities which would otherwise be illegal.

Hazel Dormouse

Hazel Dormouse and their habitats are protected by:

- Wildlife and Countryside Act 1981 (as amended)
- Countryside Rights of Way (CROW) 2000
- The Natural Environment and Rural Communities Act 2006
- Conservation of Habitat and Species Regulations 2010

These make it an offence to:

- Capture, injure or kill a Hazel Dormouse
- Disturb a Hazel Dormouse
- Damage or destroy breeding or nesting sites in use by Hazel Dormice
- Disturb a Dormouse whilst it is occupying a structure or place that they use for shelter or protection
- Obstruct access to any structure or place that the Dormouse uses for shelter and protection.
- To possess or control any live or dead specimens.

Otter

Otters are fully protected by the European Habitats Directive (92/43/EEC) by being incorporated in annex II of the legislation. In addition to this, otters are listed on schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- To intentionally kill, injure or take an otter.
- To possess or control any live or dead specimens.
- To intentionally or recklessly damage, destroy or obstruct access to any structure, feature or place of shelter in use by otters.
- To intentionally or recklessly disturb an otter whilst it is in occupation of a feature or structure.
- To sell, possess or transport for the purpose of sale or publicly declare the desire to buy or sell otters.

Reptiles

All six native reptiles within Great Britain are legally protected, with the extent of protection varying dependent upon their rarity and conservation importance.

Those that receive full protection under the Wildlife and Countryside Act 1981 (as amended) are the rare sand lizard and smooth snake. These species also receive protection under the Conservation (Natural Habitats &c.) Regulations 1994 (also referred to as the Habitats Directive). This means that they are protected from deliberate disturbance, killing, injury or capture and the habitat in which they live is also fully protected against damage or destruction. Any activity involving disturbance or damage to habitats utilised by sand lizards or smooth snakes would require a licence issued by the Department of the Environment, Food and Rural Affairs (DEFRA) following consultation with the statutory nature conservation organisation (Natural England).

The remaining four reptile species are 'partially protected' under the Wildlife and Countryside Act 1981 (as amended), with these species being slow-worm, common lizard, grass snake and adder. This means that these species are protected against intentional killing, injuring and against sale, but their habitat is not protected. In planning terms this means that the presence of these species is a material consideration and there is a requirement to ensure that any reptile interest is safeguarded. If a proposed development is likely to have an impact on these reptiles, then the statutory nature conservation organisation must be notified, particularly if capture and translocation is being proposed. In some parts of the UK, sites that support common reptile species such as common lizards and slow-worms can qualify as County Wildlife Sites. Sites of this designation may receive protection in planning policy.

Water Voles

Water Voles are fully protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- To intentionally kill, injure or take a water vole.
- To possess or control any live or dead specimens.
- To intentionally or recklessly damage, destroy or obstruct access to any structure, feature or place of shelter in use by water voles.
- To intentionally or recklessly disturb a water vole whilst it is in occupation of a feature or structure.
- To sell, possess or transport for the purpose of sale or publicly declare the desire to buy or sell water voles.

Non-Native Floral Species

It is an offence under schedule 9 of the Wildlife and Countryside Act 1981 (as amended) to plant or otherwise cause non-native flora to grow in the wild. This includes the transportation of earth that has previously had non-native species growing and includes the spread of the species.

All stands of non-native floral species need to be disposed of safely at a licenced landfill site according to the Environmental Protection Act (Duty of Care) Regulations 1991.

Appendix G: Bats and Artificial Light

Artificial lighting is known to affect bat's roosting and foraging behaviour, with lighting resulting in a range of impacts that includes roost desertion (BCT, 2009), delayed emergence of roosting bats (Downs et al., 2003), increased activity of some bat species and decreased activity by others (Stone et al., 2012).

An experimental approach using LED units, demonstrated that relatively fast-flying bat species, including the common pipistrelle, showed no significant impacts as a result of new artificial lighting, even when lighting was set at relatively high levels close to 50 lux.

In contrast, slow flying bats such as the myotis bats (*Myotis* spp.) showed sharp reductions in presence, even at low light levels of 3.6 lux (Stone et al., 2012).

Current recommendations for all bat species specifies that no bat roost should be directly illuminated.

Due to the impacts of lighting, mitigation and sensitive lighting design schemes are required for projects where bats are present. These should include bat friendly lighting plans that should aim to avoid lighting wherever possible. If this is not possible, then the minimisation of any lighting impacts is required by adopting the following measures:

➤ **To introduce lighting curfews or use of PIR sensors.**

Lighting curfews can be an effective way of avoiding impacts on bats. These curfews may involve either turning off lighting or dimming light units at specific times of the night, dimming units at key times of the year, providing the luminaire allows for this option via a control unit. Lighting to be triggered by PIR sensors can be expected to be illuminated only when required and for a low proportion of time.

➤ **To consider no lighting solutions where possible.**

Options such as white lining, good signage and LED cats eyes should be considered as preferable. Reflective fittings may help make use of headlights to provide any necessary illumination in some areas.

➤ **To use only high pressure sodium or warm white LED lamps where possible.**

High pressure sodium and warm white LED lamps emit lower proportions of insect attracting UV light than mercury, metal halide lamps and white LED lighting. Generally, lamps should have a lower proportion of white or blue wavelengths, with a colour temperature <4200 kelvin recommended (BCT, 2014).

➤ **To minimise the spread of light.**

The light spread should be kept at or near horizontal to ensure that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Baffles, hoods, louvres and shields should be used where necessary to reduce light spill.

➤ **To consider the height of the lighting column.**

While downward facing bollard lighting is often preferable, it should be noted that a lower mounting height does not automatically reduce impacts to bats as bollard lighting can often be designed to provide up-lighting. Where bollard lighting is considered to be the most appropriate system, bollard spacing or unit density should be kept to a minimum and units should be fitted with the appropriate hoods/deflectors to reduce any up-lighting.

➤ **To avoid reflective surfaces below lights.**

The polarisation of light by shiny surfaces attracts insects increasing bat activity (BCT, 2012). Consequently, surface materials around lighting require consideration.

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The survey results purport the current status of the site and its potential for protected species utilisation at the time of surveying. It should not be viewed as a complete list of the possible flora and fauna species that could be using the site at different times of the year.

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No reliance should be made on any such comments in relation to the structural integrity of the features located on the surveyed site. All information within the report is based solely on evidence that has been found on site during the service provided. No individual opinion or inference will be made other than that of the suitably qualified ecologist appointed to the project.